

What is claimed is:

1. A method for testing a sample for the presence of at least one strain of West Nile Virus, comprising providing a sample, said sample optionally containing West Nile Virus RNA, and exposing said sample to an oligomer comprising a targeting base sequence that is substantially complementary to at least seven consecutive bases in a West Nile Virus target sequence, allowing said oligomer to hybridize with said West Nile Virus RNA to form a hybrid, detecting said hybrid, and thereby detecting for the presence of at least one strain of West Nile Virus.
2. The method of claim 1, including wherein said oligomer comprises a parallel-stranded hairpin.
3. The method of claim 2, including wherein said parallel-stranded hairpin comprises at least one 8-aminopurine.
4. The method of claim 1, including wherein said West Nile Virus target sequence comprises the sequence set forth in SEQ ID NO: 1.
5. The method of claim 4, including wherein said oligomer comprises a parallel-stranded hairpin.
6. The method of claim 5, including wherein said parallel-stranded hairpin comprises at least one 8-aminopurine.
7. The method of claim 1, including wherein said West Nile Virus target sequence comprises the sequence set forth in SEQ ID NO: 2.
8. The method of claim 7, including wherein said oligomer comprises a parallel-stranded hairpin.
9. The method of claim 8, including wherein said parallel-stranded hairpin comprises at least one 8-aminopurine.
10. The method of claim 1, including wherein said West Nile Virus target sequence comprises the sequence set forth in SEQ ID NO: 3.

11. The method of claim 10, including wherein said oligomer comprises a parallel-stranded hairpin.

12. The method of claim 11, including wherein said parallel-stranded hairpin comprises at least one 8-aminopurine.

13. The method of claim 1, including wherein said West Nile Virus target sequence comprises the sequence set forth in SEQ ID NO: 4.

14. The method of claim 13, including wherein said oligomer comprises a parallel-stranded hairpin.

15. The method of claim 14, including wherein said parallel-stranded hairpin comprises at least one 8-aminopurine.

16. The method of claim 1, including wherein said West Nile Virus target sequence comprises the sequence set forth in SEQ ID NO: 5.

17. The method of claim 16, including wherein said oligomer comprises a parallel-stranded hairpin.

18. The method of claim 17, including wherein said parallel-stranded hairpin comprises at least one 8-aminopurine.

19. The method of claim 1, including wherein said West Nile Virus target sequence comprises the sequence set forth in SEQ ID NO: 6.

20. The method of claim 19, including wherein said oligomer comprises a parallel-stranded hairpin.

21. The method of claim 20, including wherein said parallel-stranded hairpin comprises at least one 8-aminopurine.

22. The method of claim 1, including wherein said West Nile Virus target sequence comprises the sequence set forth in SEQ ID NO: 7.

23. The method of claim 22, including wherein said oligomer comprises a parallel-stranded hairpin.

24. The method of claim 23, including wherein said parallel-stranded hairpin comprises at least one 8-aminopurine.

25. The method of claim 1, including wherein said West Nile Virus target sequence comprises the sequence set forth in SEQ ID NO: 8.

26. The method of claim 25, including wherein said oligomer comprises a parallel-stranded hairpin.

27. The method of claim 26, including wherein said parallel-stranded hairpin comprises at least one 8-aminopurine.

28. The method of claim 1, including wherein said West Nile Virus target sequence comprises the sequence set forth in SEQ ID NO: 9.

29. The method of claim 28, including wherein said oligomer comprises a parallel-stranded hairpin.

30. The method of claim 29, including wherein said parallel-stranded hairpin comprises at least one 8-aminopurine.

31. The method of claim 1, including wherein said West Nile Virus target sequence comprises a West Nile Virus RNA pyrimidine sequence comprising about seven to twenty-one nucleotides, said West Nile Virus RNA sequence comprising no more than three purines within the pyrimidine sequence.

32. The method of claim 31, including wherein said oligomer comprises a parallel-stranded hairpin.

33. The method of claim 32, including wherein said parallel-stranded hairpin comprises at least one 8-aminopurine.

34. The method of claim 1, including wherein said West Nile Virus Target Sequence is a sequence homologous to a sequence selected from the group consisting of SEQ ID NO: 1, SEQ ID NO: 2, SEQ ID NO: 3, SEQ ID NO: 4, SEQ ID NO: 5, SEQ ID NO: 6, SEQ ID NO: 7, SEQ ID NO: 8, or SEQ ID NO: 9.

35. A nucleic acid probe for detecting a target sequence of West Nile Virus RNA optionally present in a sample, said nucleic acid probe comprising a targeting base sequence that is substantially complementary to at least about seven consecutive bases in a West Nile Virus target sequence.

36. The nucleic acid probe of claim 35, wherein said nucleic acid probe comprises a parallel-stranded hairpin.

37. The nucleic acid probe of claim 36, wherein said parallel-stranded hairpin comprises at least one 8-aminopurine.

38. A nucleic acid probe solution, comprising a mixture of nucleic acid probes of claim 35.

39. The nucleic acid probe of claim 35, wherein said West Nile Virus target sequence is selected from the group consisting of SEQ ID NO: 1, SEQ ID NO: 2, SEQ ID NO: 3, SEQ ID NO: 4, SEQ ID NO: 5, SEQ ID NO: 6, SEQ ID NO: 7, SEQ ID NO: 8, or SEQ ID NO: 9.

40. A method for treating a patient having the West Nile Virus comprising administering to said patient a therapeutic amount of a composition capable of binding the RNA of the West Nile Virus, wherein said composition comprises an oligonucleotide having a base sequence that is substantially complementary to at least about seven consecutive bases in a West Nile Virus target sequence.

41. A method for capturing RNA of the West Nile Virus, comprising the steps of

- a) providing at least one oligomer probe, said oligomer probe comprising a targeting base sequence that is substantially complementary to at least about seven consecutive bases in a West Nile Virus target sequence, said oligomer probe further comprising an attached magnetic bead;

b) providing a sample, said sample optionally containing RNA of the West Nile Virus;

c) combining said oligomer probe with said sample to form a mixture causing formation of at least one probe-RNA hybrid;

d) separating said probe-RNA hybrid from said sample by applying a magnetic field to said probe-sample mixture; and

e) capturing said RNA.

42. The method of claim 41, including wherein said West Nile Virus target sequence is selected from the group consisting of SEQ ID NO: 1, SEQ ID NO: 2, SEQ ID NO: 3, SEQ ID NO: 4, SEQ ID NO: 5, SEQ ID NO: 6, SEQ ID NO: 7, SEQ ID NO: 8, or SEQ ID NO: 9.

43. The method of claim 41, including wherein said oligomer probe comprises a parallel-stranded hairpin.

44. The method of claim 41, including wherein said parallel-stranded hairpin comprises at least one 8-aminopurine.

45. A method for reporting RNA of the West Nile Virus, comprising the steps of

a) providing at least one oligomer probe, said oligomer probe comprising a targeting base sequence that is substantially complementary to at least about seven consecutive bases in a West Nile Virus target sequence, said oligomer probe further comprising an attached magnetic bead;

b) providing a sample, said sample optionally containing RNA of the West Nile Virus;

c) combining said oligomer probe with said sample to form a mixture causing formation of at least one probe-RNA hybrid;

d) separating said probe-RNA hybrid from said sample by applying a magnetic field to said probe-sample mixture; and

e) reporting said RNA.

46. A method for inhibiting reproduction of the West Nile Virus comprising contacting the RNA of the West Nile virus with a composition capable of binding the RNA of the West Nile Virus, wherein said composition comprises an oligonucleotide having a base sequence that is substantially complementary to at least about seven consecutive bases in a West Nile Virus target sequence.